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New Plants from New Mexico.—I.

By E. O. Wooton.

A portion of the summer of 1897 was spent by my wife and myself in central southern New Mexico collecting plants. Between June 14 and September 10 we traveled in a wagon from Mesilla nearly to Fort Stanton and back, camping wherever it was most convenient and collecting as we went. The country visited is interesting botanically and a part of it has, so far as I know, never been visited by any botanist except myself.

The Mesilla Valley, in which now lie Las Cruces ("Crucis") Mesilla, Doña Ana and the ruins of old Fort Fillmore referred to in the Botany of the Mexican Boundary Survey, is but a broadening of the flood plain of the Rio Grande; it is partly under cultivation and is composed partly of flats of more or less alkaline adobe soil and partly of low sand hills.

Twelve miles east of the valley and running nearly parallel to it are the Organ Mountains visited in the early fifties by Mr. Charles Wright and Dr. Bigelow. This range of mountains is narrow, rugged and precipitous, with little water and comparatively few trees.

East of the Organs (and their northern extension, the San Andreas Mountains) lies an almost flat plain, fifty to sixty miles wide and bounded on the eastern side by the Sacramento and White Mountains. This plain is a treeless and apparently barren stretch of mesa, lowest near the middle, where the altitude is about 4000 feet above the sea level.

The only water is very strongly alkaline and is found at three wells near the middle of the plain and a few miles south of a very peculiar and extensive deposit of gypsum known as the "White Sands."

The White Mountains are in Lincoln County almost due northeast of the Organs and about ninety miles away. They cover several hundred square miles of area, receive considerable infall, are watered by several small streams, have heavy forests of pine and Douglas spruce with a sprinkling of oaks and a very interesting herbaceous flora.

Of the whole time in the field nearly one month was spent in and about Mesilla, about two weeks in the Organ Mountains, nearly one week at the White Sands and the remainder at various places in the White Mountains from Tularosa, at the southwestern base of the range, to the Mescalero Indian Agency, Ruidoso Postoffice, Gilmore's Ranch on Eagle Creek, and finally to the top of Sierra Blanca Peak.

The result of the trip was the collection of numerous interesting and not a few rare plants, while the following are some of the new species discovered:

LEPIDIUM EASTWOODIAE.

Perennial with ligneous base from which arise one to several erect stems 6–10 dm. high, which branch corymbosely at the top; branches terminated by many-flowered racemes: basal and lower stem leaves 3–5 cm. long, pinnately divided into oblong acute segments which are entire or few-toothed, upper cauline leaves narrowly oblong-lanceolate, acute, entire or occasionally with a few lobe-like teeth, 2–6 cm. long and 2–8 mm. broad, not revolute, all leaves thin, dark green and glabrous: rachis and pedicels pulverulent; pedicels in fruit 5–7 mm. long, spreading, about 2 mm. apart on the rachis; flowers bright white, crowded in a rounded cluster at the top of the raceme: sepals elliptic, 1 mm. long, greenish white, glabrous, deciduous before the petals: petals elliptic, 3 mm. long, claw 1 mm. long: stamens tetradynamous: pod elliptic-ovate, emarginate, tipped by the style which is scarcely longer than the emargination.

Described from plants collected at the Mescalero Agency in the White Mountains, Lincoln County, July 26, at an altitude of 6300 feet. * No. 672.

I became acquainted with this plant in the fall of 1890 when I collected it at the Organ Mountains. I have named it in honor of Miss Alice Eastwood, curator of the Herbarium of the California Academy of Science, who first called my attention to the fact that it was probably distinct from *L. alyssoides* Gray.

This plant is most nearly related to *L. alyssoides*, from which it is difficult to separate it without the best of dried material. The characters which are of most importance are its size and habit, and thinner darker green foliage, the cauline leaves being much broader and the pinnatifid leaves being more numerous and not wholly basal. Normally it grows in rather heavy soil producing erect simple stems 5–8 dm. to the first branch. Plants of the first year produce but a single stem and might easily be taken for annuals.

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* The altitudes here given are from uncorrected aneroid readings and have a possible error of 150 feet or less.

In the Organ Mountains old plants are quite frequently found growing in cracks in vertical cliffs, and in these situations the stems grow out at all angles and curve upward. I have seen well grown plants of this kind forming hemispherical masses of green and white a meter in diameter upon the face of a perpendicular rocky wall.

LEPIDIUM THURBERI.

Annual (?) corymbosely much branched from near the base up the stout central erect stem, 3–4 dm. high; stems and leaves villous-hirsute with coarse white hairs, which are very numerous upon the young parts: leaves all pinnatified, segments ovate to oblong-elliptic, acute, entire or variously toothed in the lower leaves: inflorescence of numerous corymbosely arranged many-flowered racemes, 2 dm. or less long; flowers bright white, crowded at the top of the rachis; pedicels in fruit 5 mm. long, ascending: sepals ovate, concave, 1.5 mm. long, glabrous, green with white margin: petals elliptical, 2–3 mm. long, short-clawed: stamens tetradynamous, filaments subulate, 2–3 mm. long, anthers elliptical: pod elliptical to rotund, glabrous, emarginate, tipped by the scarcely 1 mm. long style.

Collected at Lava, June 11, while passing through on the train. No. 672.

Alt. 4200 ft.?

First collected by Dr. Geo. Thurber, at the copper mines, near what is now Silver City, in 1851 (no. 323), for whom it is here named. Also collected by Dr. H. H. Rusby, near Prescott, Ariz., May 18, 1883, and by Dr. T. E. Wilcox, at Fort Huachuca, Oct. 1892.

This plant has until now been included in *L. montanum* Nutt. which is caespitose, "nearly glabrous, decumbent" and has its upper leaves entire and comes from the extreme northwestern part of the United States.

LESQUERELLA AUREA.

Annual, sending up several erect or slightly spreading stems 3–4 dm. high, each terminating in a raceme of bright yellow flowers: leaves narrowly obovate to oblanceolate, 1–3 cm. long, 3–10 mm. broad, upper ones oblong, decurrent, subsessile, obtuse, entire to slightly sinuate-dentate; leaves, stems and outside of sepals covered with a close fine soft stellate pubescence, tomentulose on the younger parts of the inflorescence: flowers in terminal racemes, crowded at the end of the rachis, the latter elongating in fruit; proper peduncle about 1 cm. long, rachis (in specimens which have only a few mature pods) 1 dm. long; pedicels 3–6 mm. long in flower, ascending, 10–12 mm. long in fruit, strongly recurved: sepals oblong, obtuse, 3 mm. long, yellowish: petals obovate-spatulate, 5 mm. long, half as broad, blade decurrent into a kind of winged claw: filaments subulate, anthers sagittate: ovary glabrous, containing 3–8 pendulous ovules: pod globose, 3 mm. in diameter, not stipitate, glabrous, tipped by the 2–3 mm. long persistent style; seeds 2–5 ovoid, light brown.

Collected on the south fork of Tularosa Creek three miles east of the Mescalero Agency in the White Mountains at an altitude of about 6500 feet on hillsides, July 30. No. 245.

This species is properly classed in the same group with *L. recurvata* (Engelm.) Wats. and should follow that species, being somewhat intermediate between it and *L. Lindheimeri* (Gray) Wats. It is easily distinguished from the latter by its strongly recurved fruiting pedicels, its less dentate leaves, slender stems, smaller flowers and softer, not lepidote pubescence. From *L. recurvata* it is separated by stouter, erect, simple (?) stems (the stems in my specimens are not branched but short branches are beginning to appear in the upper axils, indicating that they may branch somewhat as in *L. recurvata*) much larger leaves, terminally clustered and more numerous flowers and the peculiar soft pubescence which is not lepidote or scabrous.

MENTZELIA PERENNIS.

Perennial; stems caespitose, erect or slightly spreading, branched above, scabrous with retrorsely barbed hairs or almost glabrous, bark thin and white: leaves alternate, linear, 3–10 cm. long, 2–3 mm. wide, entire or with 10 or less, rounded tooth-like lobes, 2–5 mm. long, scabrous with barbed hairs: flowers terminal or in the upper axils producing a pseudo-cymose inflorescence; peduncles about 1 cm. long, subtended by small leafy bracts: calyx-tube turbinate, 5 mm. long, limb of 5 subulate segments 1 cm. long, scabrous, an indurated ring forming at the base of the segments: petals 10, oblanceolate, acute, entire, light lemon-yellow, 2 cm. long, the outer five 5 mm. broad, the inner a little narrower: stamens numerous, five outer filaments slightly expanded, same length as petals, inner ones shorter: style 1 cm. long; stigma 3-parted, minutely ciliate: pod campanulate-cylindric, barely 1 cm. long, 4 mm. in diam. when nature, with persistent calyx-lobes variously arranged, scabrous, placentae 3, parietal, strongly horizontaly laminated; seeds numerous, flattened elliptic-orbicular, winged.

Collected in a white soil (strongly impregnated with gypsum?) at Round Mountain, half way from Tularosa to the Mescalero Agency in the White mountains. July 21. Altitude 5400 feet. No. 184.

This species belongs to the group containing *M. multiflora* (Nutt.) Gray and *M. pumila* T. & G., and is, judging from the description of that species, closely related to *M. densa* Greene, but distinct from it as Prof. Greene assured me when shown my specimens.

MENTZELIA RUSBYI.

Erect, annual (?) 1–1.5 m. high, branched above: stem stout, scabrous, becoming glabrous, white: lower leaves long-lanceolate, 2 dm. long or less, 15 mm. wide, attenuate into a petiole, upper ones oblong-lanceolate, 4–10 cm. long, 1–2 cm. broad, sessile, acuminate, sinuate-dentate with a few large sharp teeth, very rough with barbed hairs: flowers in terminal cymes: calyx-tube clavate, 8–10 mm. long, bearing two pinnatifid bracts at its base; segments of the limb narrowly lanceolate, acuminate, 10–12 mm. long, 3 mm. broad at base: petals 10, light yellow, the outer five narrowly obovate to oblanceolate, 16–20 mm. long, 4–6 mm. broad, acutish, the inner five a little narrower and shorter, and tipped with rudimentary anthers: stamen numerous, 6–12 mm. long, a few of the outer filaments slightly detailed: style 1 cm. long; stigma 3 cleft: capsule clavate-cylindric, 3 cm. long, 1 cm. in diameter, striate, scabrous; seeds numerous, flattened, ovate, winged.

Collected at the Mescalero Agency in the White Mountains July 26, at an altitude of 6300 ft., no. 210. First collected by Dr. H. H. Rusby at Bellmont, Ariz., September 2, 1883 (no. 614), for whom the species is here named.

Its affiliations are with *M. Wrightii* Gray, from which it can be separated by its larger size, larger leaves which are sharply toothed and not at all pinnatifid, and by the much larger flowers, and *M. nuda* (Pursh) T. & G., which has smaller, more finely toothed leaves and still larger flowers.

CONANTHUS (?) CARNOSUS.

Perennial root; stems several and much branched forming a rounded mass 3–4 dm. high, fleshy (shriveling much on drying) canescent with matted more or less appressed stiff white hairs; leaves linear, 2–4 cm. long, 1–2 mm. broad, fleshy and so strongly revolute as to appear terete, obtuse, strongly hispid; whole plant of a peculiar yellowish green color not shown in the dried material: inflorescence cymose, pedicels 2–3 mm. long, each flower subtended by a linear leaf-like bract: sepals linear, obtuse, 7–10 mm. long, hispid, little united at the base, persistent: corolla ochroleucus, tubular, slightly exceeding the sepals, constricted at the throat, pubescent; limb of five strongly reflexed oval repand segments, 1–2 mm. longer, throat not personate, glabrous: stamens 5, alternate with corolla lobes, filaments inserted at slightly different heights on the tube, each decurrent into two wing-like margins at the base, which are not free at the tips as in *Phacelia;* anthers ovate, included: styles two, free their entire length, peristent, spreading, villous at the base; stigmas capitate; ovary two-celled by the intrusion of the placenta which is thickened and pseudo-central, but breaks away with the two valves; disk not very prominent: pod oblong-ovate, pubescent; seeds numerous (about 50) horizontal, irregular from crowding, brown, reticulate pitted under high power.

Collected on the White Sands July 17. Altitude 4000 feet. No. 164.

This plant is most nearly related to *Nama stenophyllum* Gray, with which, however, it will hardly be confused. As to whether it should be called *Conanthus* or *Marilaunidium* I am not at present able to decide, having nothing but a description of the former genus at hand.

VERBENA PERENNIS.

Suffrutescent perennial, 3–4 dm. high, with numerous erect or ascending striate-angled stems: leaves linear, the lowermost occasionally pinnately few-lobed, 1–2.5 cm. long, 2–3 mm. wide, erect or ascending, entire, margins revolute; leaves and stems sparsely covered with short sharp stiff upwardly-pointing hairs: spikes terminating the stems and branches, loosely many-flowered; flowers small, 7–8 mm. long, sessile, each subtended by an ovate persistent bract 3 mm. long and glabrous above: calyx 4 mm. long, tubular, herbaceous ribbed, ribs pubescent, hyaline and glabrous between the ribs, teeth short-triangular, equal, acute: corolla deep blue, tube slightly longer than the calyx, expanded just below the throat, forming a ring in which the almost sessile anthers lie, throat filled with hairs; the limb 5-parted, bilabiate, lobes elliptical, repand: style short, included, stigma unequally two-lobed, clavate: fruit four cylindric glabrous reticulated brownish nutlets, minutely retrorsely scabrous on the commissure, enclosed in the persistent calyx, 5–7 mm. apart on the rachis.

Found growing in crevices of rocks along the road about two miles west of the Mescalero Agency in the White Mountains, July 21. Altitude 6000 feet. No. 187.

This species is most nearly related to *V. canescens* H.B.K. var. *Neo-Mexicana* Gray, but may be easily separated from that variety (?) by the linear, generally simple revolute leaves and the peculiar pubescence.

MONARDA STRICTA.

Aromatic perennial: stems erect, little or not at all branched, quadrangular with rounded angles, reddish tinged, 5–8 dm. high, standing alone or in clumps arising from creeping underground stems, internodes generally longer than the leaves: leaves opposite on petioles 1 cm. long or less, ovate- to triangular-lanceolate, 4–6 cm. long, 1–2 cm. wide, acuminate, a few sharp serrate-dentate teeth along the sides but the acumination entire, base rounded or truncate, not cordate; whole plant canescent with minute curved hairs, glabrate upon the upper surface of the leaves which is slightly darker green: flowers in a single terminal involucrate head, short pedicelled: bracts of the involucre leaf-like, elliptic-ovate, short-acuminate, rose purple above, 1–2.5 cm. long, floral bracts linear-subulate, hispid on margins: calyx tubular, 13-ribbed, 7–10 mm. long, limb of five equal subulate teeth 1–2 mm. long, throat densely white or purplish hirsute within, a tuft of stiff spreading hairs in each sinus of the limb: corolla bright purple, becoming bluer with age, strongly bilabiate, upper lip linear, straight, lower lip 3-lobed, lateral lobes broad, repand, middle lobe oblong, entire corolla except the middle lower lobe villous on the outside, upper lip not more so at the tip: stamens two, exserted with pistil from under the upper lip: ovary with 4 rounded lobes, glabrous; mature fruit not seen.

Collected on the divide, nine miles northeast of the Mescalero Agency in the White Mts., August 1. Alt. 7000 ft. No. 267.

This is *M. fistulosa* L. var. *mollis* (L.) (Mearns no. 86. Mogollon Mts. Ariz., July 13, 1897) of Britton in N. Y. Acad. Sci. **8**: 71. 1889, Not Benth.; and Heller's no. 3798, distributed as *M. Lindheimeri* Engelm. & Gray, from near Santa Fé, N. Mex., July 2, 1897. Alt. 8000 ft. It was collected by Mrs. R. W. Hoyt at Ft. Apache, Ariz., in 1893 (*M. scabra* Britton *l. c.* **14**: 40. 1894. Not Beck.), and by myself in the White Mts., N. Mex., at about 6800 ft., July 3, 1895.

It has passed as *M. scabra* Beck, to which it is most closely related. It may be distinguished by its darker colored flowers, its strict unbranched stem, its longer internodes and generally narrower not cordate leaves.